Title (en)
APPROXIMATION OF LOG-LIKELIHOOD RATIOS FOR SOFT DECISION DECODING IN THE PRESENCE OF IMPULSE NOISE CHANNELS

Title (de)
ANNÄHERUNG DER LOGARITHMISCHEN WAHRSCHEINLICHKEITSVERHÄLTNISSE FÜR DIE SOFT-DEKODIERUNG BEI IMPULSRAUSCHKANÄLEN

Title (fr)
APPROXIMATION DE RAPPORTS DE VRAISEMBLANCE LOGARITHMIQUES POUR DÉCODAGE À DÉCISIONS SOUPLES EN PRÉSENCE DE CANAUX À BRUIT IMPULSIONNEL

Publication
EP 3553953 A1 20191016 (EN)

Application
EP 18305464 A 20180413

Priority
EP 18305464 A 20180413

Abstract (en)
Method for processing an encoded signal (S) received from a noisy channel, in particular with impulsive noise in wireless transmission, prior to the decoding of the signal by a decoder, the method comprising:- applying to the encoded signal (S) a first function () based on at least two parameters (a, b) depending on the channel noise, for obtaining a modified signal (S') to be decoded, the first function being chosen so as to mitigate the influence of the channel noise during the decoding of the modified signal (S'),said at least two parameters (a, b) being estimated beforehand by minimizing a second function () taking as input a signal () obtained from the encoded signal (S) modified by a processing function using a random binary sequence.

IPC 8 full level
H03M 13/45 (2006.01)

CPC (source: EP)
H03M 13/45 (2013.01); **H03M 13/6337** (2013.01); **H03M 13/658** (2013.01); **H04L 1/0066** (2013.01)

Citation (applicant)
- HASSEN BENMAAD ET AL.: "IEEE Communications Letters", vol. 17, 2013, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, article "Clipping demapper for LDPC decoding in impulsive channel", pages: 968 - 971
- POULLIAT C. ET AL.: "Performances des codes LDPCpour l'Ultra-Large Bande (ULB) impulsionnelle sous approximation gaussienne generalisee des interferences", PROCEEDINGS OF GRETSI CONFERENCE, 2007
- CHUAN HSIAN: "Iterative SOVA decoding over alpha stable channels", JOURNAL OF ENGINEERING SCIENCE AND TECHNOLOGY, vol. 7, no. 3, June 2012 (2012-06-01)
- CHUAN HISIAN: "SOVA decoding in Symmetric Alpha-Stable Noise", SYMPOSIUM ON INFORMATION & COMPUTER SCIENCES, 2011
- M. JOHNSTON ET AL.: "Sum-Product Algorithm Utilizing Soft Distances on Additive impulsive Noise Channels", IEEE TRANSACTIONS ON COMMUNICATIONS, vol. 61, no. 6, June 2013 (2013-06-01), pages 2113 - 2116
- WEI GUI: "Decoding Metric Study for Turbo Codes in Very impulsive Environment", IEEE COMMUNICATIONS LETTERS, vol. 16, no. 2, February 2012 (2012-02-01), pages 256 - 258, XP011409351, DOI: doi:10.1109/LCOMM.2011.112311.111504

Citation (search report)
- [A] US 2005058302 A1 20050317 - DANCE CHRISTOPHER R [GB], et al
- [A] DIMANCHE VINCENT ET AL: "On Detection Method for Soft Iterative Decoding in the Presence of Impulsive Interference", IEEE COMMUNICATIONS LETTERS, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 18, no. 6, 1 June 2014 (2014-06-01), pages 945 - 948, XP011550325, ISSN: 1089-7798, [retrieved on 20140606], DOI: 10.1109/LCOMM.2014.2320921
- [A] DIMANCHE VINCENT ET AL: "Estimation of an approximated likelihood ratio for iterative decoding in impulsive environment", PROC. 2016 IEEE WIRELESS COMMUNICATIONS AND NETWORKING CONFERENCE, IEEE, 3 April 2016 (2016-04-03), pages 1 - 6, XP032959372, DOI: 10.1109/WCNC.2016.7565031
- [A] HOU YI ET AL: "A non-linear LLR approximation for LDPC decoding over impulsive noise channels", PROC. 2014 IEEE/CIC INTERNATIONAL CONFERENCE ON COMMUNICATIONS IN CHINA (ICCC), IEEE, 13 October 2014 (2014-10-13), pages 86 - 90, XP032721806, DOI: 10.1109/ICCCHINA.2014.7008248
- [A] GAO CHENYU ET AL: "Gradient descent bit-flipping based on penalty factor for decoding LDPC codes over symmetric alpha-stable noise channels", PROC. 2017 IEEE/CIC INTERNATIONAL CONFERENCE ON COMMUNICATIONS IN CHINA (ICCC), IEEE, 22 October 2017 (2017-10-22), pages 1 - 4, XP033343368, DOI: 10.1109/ICCCHINA.2017.8330404

Cited by
CN114363218A

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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BA ME

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